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CZECHOSLOVAKIA TRAINS NUCLEAR SPECIALISTS

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FOREWORD

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Following is the translation of an article by Gyorgy Tolgyessi in Uj Szo (New Word), Vol XIV, No 1, Bratislava, 1961, page 6.7

In order to create an atomic industry for peaceful purposes, it has become necessary to train expert personnel who can work with the difficult apparatus and grasp the theory of operations. Hence, it is very important to train atomic experts at the technical-school and university level.

The training of nuclear experts at Karlova University's Technical and Nuclear Physics Department (Prague) proceeds in three channels.

1. Nuclear Physics (5-year training period)
2. Nuclear Technology ($5\frac{1}{2}$ year training period)
3. Nuclear Chemistry (5-year training period)

Nuclear physics prepares the students in the basic problems of physics of nuclei and to its practical applications. They get exhaustive training in mathematics and general physics. After being introduced to basic physics and mathematics, they will be taught the theory and practices of the working methods of nuclear physics. Energy liberated in uranium and plutonium fission and its utilization will be studied. Neutron physics, natural and artificial radioactivity and spectroscopy of nuclei will also be dealt with.

Nuclear engineers are trained in the nuclear technology program. This is the most important program in the department. Graduates of the program will design and run atomic reactors and power stations. In the first years the emphasis is on mathematics, physics and chemistry. The design of atomic reactors demands a working knowledge of mechanics, hence it will also be taught. Later, the advanced topics of reactor engineering will be given: transformation of nuclear energy into heat; neutron absorption by fuel and construction materials; neutron escape; properties of chain reactions. The students will also study the models and uses of automatic and tele-mechanic electronic control boards; measurement of neutron radiation and radioactivity; control of the energy content of the reactors; etc. Various problems of atomic power stations will be discussed within the framework of the major topic.

The nuclear chemists produce atomic fuels and construction materials of high purity. Hence, the nuclear chemists will be taught inorganic, organic, physical and analytical chemistry mainly. Lectures will be followed by laboratory periods and the students will work with highly radioactive materials. In the course of their studies the students will learn

the working methods of atomic-fuel production and refining. They will also study the practical applications of radio isotopes.

The middle technical cadres [technicians] are the responsibility of the Nuclear Technology Higher School in Prague. This school trains technicians in the atomic trade. After finishing the school, graduates will be employed at atomic power plants and reactors. Others will work on nuclear-fuel production and purification, and with radio isotopes. The school trains electro-technicians as well, who will equip, maintain and repair atomic reactors, accelerators and radiation counters. The school ends with a comprehensive examination.

It was found necessary to train a relatively large number of doctors, engineers and scientists in radio-isotope working methods. This special training is given in lecture series by universities and research institutes. University students majoring in the natural sciences will also get courses in the peaceful applications of atomic energy.